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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/026,052

12/21/2001

James Allam Forster

TI-32569

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23494

7590

08/14/2002

TEXAS INSTRUMENTS INCORPORATED  
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DALLAS, TX 75265

EXAMINER

MITCHELL, JAMES M

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/026,052

Applicant(s)

FORSTER ET AL.

Examiner

James Mitchell

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 18-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) 1-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 4
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claim 1 recites the limitation "said multiplicity of conductive paths" in lines 6-7.
3. Claim 8 recites the limitation "the middle" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Wark et al. (U.S 5,929,521).
6. Wark (Fig 6A,B, 12) discloses an apparatus for testing (Abstract) having an array of solder ball contacts (142) or connection probes of a selected size, said solder-ball contact having a contact area and a peripheral area comprising: a support substrate (506) having a working surface, a multiplicity of conductive pads (156) mounted on said working surface, a multiplicity of conductive pathways extending from (Fig 1A; Item 23) said multiplicity of conductive pathways to test circuitry, at least one conductive member or stud bump formed of an aluminum wire ("projection, 132; Column 6, Lines 56-58)

formed on each of said multiplicity of conductive pads and extending away from said working surface, and said conductive member formed on said pad inherently positioned on said support substrate to make an electrical connection with said peripheral area of said solder-ball contact; wherein conductive member comprises at least four conductive members located to receive said peripheral area of a solder-ball contact for making an electrical connection; said conductive member having a length of a wire bonded by a molding compound that inherently covers said wire (a wire portion in the middle of conductive member) to said conductive pad (Column 6, Lines 31-33); wherein said length of wire is formed with a raised (protrudes from surface) area in a middle of said pad and said wire is covered with a mold compound; said support substrate comprises a planar insulating material and said conductive pathways comprise conductive traces formed on said planar insulating material (Column 6, Lines 23-24).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wark in combination with King et al. (U.S 6,208,027).

10. Wark does not appear to explicitly disclose a bump formed on a bump for each conductive member, however King utilizes an inherent stud bump (a piece of material serving as a support with a protuberance on a surface) formed on top of another stud bump.

11. It would have been obvious to one of ordinary skill in the art to modify the conductive member of Wark by incorporating a second stud bump on top of a stud bump in order to allow for the bumps of a chip to be easily removed for analysis as taught by King (Column 2, Lines 24-26).

12. Claims 15, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wark.

13. Wark disclosed the elements stated in paragraph 6 and an inherent interconnecting nest positioned to receive a solder ball contact via three lengths of wire (each conductive member formed of a wire having a length) bonded to selected ones of said multiplicity of conductive pads.

14. Although Wark doesn't appear to explicitly disclose the process limitation "stud bumps or wire deposited by a wire bonding machine," the product of the prior art

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inherently possesses the structural characteristics imparted by the process limitation.


See *In re Fitzgerald, Sanders, and Bagheri*, 205 USPQ 594 (CCPA 1980).

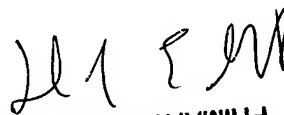
***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
jmm  
August 8, 2002

  
DAVID E. GRAYBILL  
PRIMARY EXAMINER

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## DETAILED ACTION

### *Election/Restriction*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 18-25, drawn to a method of making a semiconductor apparatus, classified in class 438, subclass 612.
  - II. Claims 1-17, drawn to a semiconductor apparatus, classified in class 257, subclass 737+.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process, ie a process where positioning is not used to align, rather a self-alignment process is used.
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with James C. Kesterson on 8/1/02 a provisional election was made with traverse to prosecute the invention of group II, claims 1-17. Affirmation of this

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election must be made by applicant in replying to this Office action. Claims 18-25 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).